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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/760,635

01/16/2001

John Adam Edmond

5000.137

5506

21176

7590

03/11/2003

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EXAMINER

CRANE, SARA W

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 03/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/760,635	EDMOND ET AL.	
	Examiner	Art Unit	
	Sara W. Crane	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 December 0202.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 22-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2,3</u> | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of claims 1-21 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that "the groups identified by the Office are not separate and distinct." This is not found persuasive because the statement is a conclusion only; no reasons whatever are set forth to explain why Applicant has reached this conclusion. The Office action of 19 November 2001 sets forth reasons for requiring the election, and none of these reasons have been traversed by the Applicant, so there would appear to be nothing improper in the reasoning.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Udagawa, 6,153,894.

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As noted in the International Search Report by the European examiner, Udagawa figure 14 teaches each element in these claims. With respect to claim 1, layer 106(104) is a first n-type cladding layer (column 18, lines 10-28), layer 118 is a second n-type cladding layer (column 10, lines 58-62), layer 109 is an n-type active layer (column 10, line 46), and layer 110 is a p-type layer (column 10, lines 60-62). The bandgaps shown in figure 14 have the relationship required by claim 1. All layers are from the AlInGaN system. Because layer 118 is n-doped, the only source for p-type dopant magnesium in this layer is from diffusion from layer 110, so there would be a "substantial absence of magnesium" in this layer. With respect to claims 2 and 4, the recited relationships are shown in figure 14. With respect to claim 6, see column 10, line 22.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 5, and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Udagawa in view of Schetzina, 6,046,464.

With respect to claim 3 or 13, the abstract of Schetzina provides motivation for including a graded layer between two other layers of different band gaps (to eliminate conduction or valence band offsets). With respect to claim 8, Udagawa column 16, lines 39-50, teaches that diffusion of p-type dopant into the active layer is undesirable.

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It would have been obvious to make layer 118 sufficiently thick to avoid the undesirable diffusion. With respect to claim 11, column 7, lines 40-44, of Udagawa provide motivation for a superlattice structure in a clad layer (increased electrical conductivity). Claims reciting specific materials from the AlInGaN system would have been obvious, in order to provide variation in the color of light emitted from the active layer, while maintaining the necessary band gap relationships as taught in the reference for the other layers.

Claims 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-14 above, and further in view of Edmond et al., WO 99/18617.

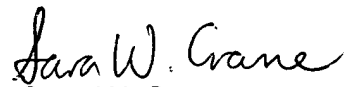
As noted in the European Search Report, claim 8 of Edmond et al. teaches a silicon carbide substrate for an optoelectronic device having a Group III nitride active layer, and including the "discrete crystal portions" as recited for reducing the barrier caused by the silicon carbide substrate. Such a substrate would have been obvious for the Udagawa device, to obtain the advantages noted on for example page 2 of the Edmond reference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Crane, whose telephone number is (703) 308-4894.

The fax phone number for this Group is (703) 308-7722.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist, whose telephone number is (703) 308-0956.

  
Sara W. Crane  
Primary Examiner  
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